

REMARKS

Claims 26-49 are now pending in this application. Claims 1-25 have been cancelled. Reconsideration of this application is requested.

The outstanding rejections of claims 1-6, 8-13, and 15-25 under 35 U.S.C. § 102 and § 103 as being either anticipated by or unpatentable over Sweatt et al., U.S. Patent Application No. 2002/0105725, Jepsen et al., U.S. Patent No. 6,172,792, Moseley et al., U.S. Patent No. 6,124,920 or Oda et al., U.S. Patent No. 6,476,550, are respectfully traversed to the extent that these grounds of rejection may be applied to claims 26-49 now pending in the application.

The present invention as disclosed and claimed is directed to a focusing device that uses a diffraction grating pattern to focus light onto a focal plane, such as onto an image sensor of an image capturing device. For example, the focusing device of the invention would be used instead of a conventional refractive lens apparatus.

None of the prior art references relied upon in the various grounds of rejection discloses a diffractive focusing device or image capturing apparatus utilizing a diffractive focusing device as claimed in the subject application. Sweatt et al. discloses an optical apparatus that has a pair of diffraction gratings, where one of the diffraction gratings initially intercepts and processes incident light and then directs the light to the other diffraction grating for further processing. The apparatus is used in applications such as spectrometry and optical communications, computing, modulation and correlation. The diffraction gratings of Sweatt et al. do not focus incident light onto a focal plane. Instead, the light is focused by various telescopes and lenses 12, 18, 34 and 42, as shown for example in Figs. 1 and 3, so as to image the light onto the diffraction gratings 16 and 20. Sweatt et al. fails to disclose any of the features of the present invention as set forth in claims 26-49 now pending.

Jepsen et al. is directed to a diffraction grating that is used for redirecting light, as shown in Figs. 1a and 1b, such as light from a color display. Again, the diffraction grating does not focus incident light onto a focal plane, but simply redirects the light to another direction, as shown. Instead, the light is focused on the grating itself.

Moseley et al. discloses an optical apparatus used for 3D autostereoscopic displays or privacy displays, wherein an image is visible only at a restricted viewing region (see

Figs. 1 and 24, respectively). Moseley discloses the use of an SLM or Spatial Light Modulator device to accomplish the 3D or privacy display. Again, as shown in Figs. 1, 2, 3, 4, 5, 6, 7, 8, 22, 23, 24, 30 and 31, in all various embodiments, light is focused by a conventional lens onto the SLM. As shown, a viewer receives the image from the SLM. The light from the focused image on the surface of the SLM is focused onto the retinas of the viewer's eyes by the lens of the eyes. The SLM does not focus light onto the viewer's eyes, but rather redirects light to a selected viewing window or region.

Finally, Oda et al. is directed to an organic electroluminescent device that includes a diffraction grating or zone plate (see Fig. 6), which is formed at a location where the diffraction grating suppresses total reflection at an interface of the electroluminescent device. The zone plate or diffraction grating does not focus light and is not used to focus light onto any focal plane.

In view of the foregoing, it is apparent that none of the prior art references relied on in the rejection of claims 1-6, 8-13 and 15-25 is relevant to the diffractive focusing device and image capturing apparatus as disclosed and claimed in claims 26-49 now pending. The indication that claims 7 and 14 are directed to allowable subject matter is acknowledged with appreciation.

Conclusion

In view of the foregoing, claims 26-49 are submitted to be patentable over the prior art of record, whether considered individually or in combination. Withdrawal of the outstanding grounds of rejection and the issuance of a Notice of Allowance are earnestly solicited.

Please charge any fee or credit any overpayment pursuant to 37 CFR 1.16 or 1.17 to Deposit Account No. 08-2025.

RESPECTFULLY SUBMITTED,					
NAME AND REG. NUMBER	Vincent M. DeLuca Attorney for Applicants Registration No. 32,408				
SIGNATURE	Vincent M De Luca			DATE	18 DEC 03
Address	Rothwell, Figg, Ernst & Manbeck 1425 K Street, N.W., Suite 800				
City	Washington	State	D.C.	Zip Code	20005
Country	U.S.A.	Telephone	202-783-6040	Fax	202-783-6031